

REMARKS

Claims 1, 7, and 11 are amended, no additional claims are canceled in this response, and claims 29-35 are added; as a result, claims 1-21 and claim 29-35 are now pending in this application.

No new matter has been added through the amendments to claims 1, 7, and 11. Support for the amendments to claims 1, 7, and 11 may be found throughout the specification, for example, but not limited to, the specification on page 2, line 21 through page 3, line 23. Additional support for the amendments to claim 7 may be found, for example, but not limited to, the specification on page 4 at lines 5-6 and on page 5, line 20 through page 6, line 21.

Further, no new matter has been introduced through the addition of claims 29-35. Support for claims 29-35 may be found throughout the specification. Support for claims 29 and 30 may be found for example, but not limited to, the specification on page 4, line 24 through page 5, line 14. Support for claims 31-34 may be found for example, but not limited to, claims 11-14 as originally filed in the application. Support for claim 35 may be found for example, but not limited to, the specification on page 3 at lines 20-23.

§102 Rejection of the Claims

Claims 1 and 7 were rejected under 35 U.S.C. § 102(e) as being anticipated by Rostron (U.S. 6,559,562). Applicants do not admit that Rostron is prior art and reserve the right, as provided for under 37 C.F.R. 1.131, to "swear behind" Rostron. Applicants respectfully traverse the rejection of claims 1 and 7.

Claims 1 and 7 are not anticipated by Rostron because Rostron fails to disclose all of the subject matter as included in each of amended claims 1 and 7. For example, claim 1 as now amended recites,

a transformer circuit including an input port, the transformer circuit including an autotransformer coupled to the input port, the input port **to receive a first direct current voltage signal, the transformer circuit to generate a square wave signal** at a transformer circuit output;

a filter coupled to the transformer circuit output, **the filter to receive the square wave signal and to generate a second direct current voltage signal at an output port of the filter.**

(Emphasis added).

In contrast, Rostron discloses,

Turning now to the figures, in which like numerals refer to like elements throughout the several figures, FIG. 1 is an electric circuit diagram of a three-phase voltage sag and over-voltage compensation device 10 for an **AC electric power distribution system**.¹ (Emphasis added).

In further describing the three-phase voltage sag and over-voltage compensation device, Rostron recites,

FIG. 2 is an electric circuit diagram **of one phase of the three-phase voltage sag and over-voltage compensation device 10, (i.e., one of 18a-c), which will be referred to as the "voltage compensation device 18."** This voltage compensation device 18 includes an autotransformer 20 functionally coupled to a pulse-width modulation switch 30. The autotransformer 20 includes a lower pole 22, a center pole 24, and an upper pole 26. The pulse-width modulation switch 30 includes a center-pole switch 52 that **selectively connects the voltage source 16, typically a corresponding phase 16a-c of the electric power distribution line**, between the lower pole 22 and the center pole 24. The center-pole switch 52 includes a center-pole switching device 32 and a center-pole snubber 34 connected in parallel with the center-pole switching device 32. Similarly, the pulse-width modulation switch 30 includes an upper-pole switch 54 that selectively connects the voltage source 16 between the lower pole 22 and the upper pole 26. The upper-pole switch 54 includes an upper-pole switching device 36 and an upper-pole snubber 38 that is connected in parallel with the upper-pole switching device 36.

The voltage compensation device 18 also includes a load switch 40 that is shown on the load side of the autotransformer 20 for the purpose of illustrating the operating conditions of the voltage compensation device 18 when it is loaded (i.e., connected to the load 14) and when it is not loaded (i.e., not connected to the load 14). That is, the load switch 40 may not actually be implemented as part of the voltage compensation device 18, but its presence is useful for the purpose of describing the loaded and no-load

¹ See Rostron at column 9, lines 16-20.

operating principles of the device.

On the output side, the voltage compensation device 18 includes a load capacitor 44 connected in parallel with the load 14 to smooth the voltage-corrected AC power supply toward a sinusoidal power supply at the system frequency.²
(Emphasis added).

Thus, Rostron discloses a voltage compensation device used in a AC electric power distribution system providing a voltage corrected AC power supply toward a sinusoidal power supply at the system frequency. However, there is no disclosure in Rostron of a transformer circuit including "the input port to receive **a first direct current voltage signal**, the transformer circuit to generate **a square wave signal** at a transformer circuit output," as recited in claim 1. (Emphasis added). Further, there is no disclosure in Rostron of a filter "to receive the **square wave signal** and to generate **a second direct current voltage signal** at an output port of the filter," as also recited in claim 1. (Emphasis added). Thus, Rostron fails to disclose all of the claimed subject matter included in claim 1.

In another example of subject matter included in the claims and not disclosed by Rostron, amended claim 7 recites,

a transformer circuit including an input port, the transformer circuit including an autotransformer coupled to the input port, the input port **to receive a direct current voltage signal, the transformer circuit to generate a square wave signal at a transformer circuit output.**
(Emphasis added).

For reasons analogous to those stated above with respect to claim 1, Rostron fails to disclose for example, "the input port to receive a direct current voltage signal, the transformer circuit to generate a square wave signal at a transformer circuit output," as recited in claim 7. Thus, Rostron fails to disclose all of the claimed subject matter included in amended claim 7.

Because Rostron fails to disclose all of the claimed subject matter included in claim 1 and in claim 7, neither claim 1 nor claim 7 are anticipated by Rostron. Thus, claims 1 and 7 are patentable in view of the disclosure in Rostron.

² See Rostron at column 9, line 62 through column 10, line 29.

Applicants respectfully request withdrawal of the 35 U.S.C. § 102 rejection, and reconsideration and allowance of amended claims 1 and 7.

§103 Rejection of the Claims

Claims 1-12

Claims 1-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Glennon (U.S. 5,008,801) in view of Rostron (U.S. 6,559,562). Applicants respectfully traverse the rejection of claims 1-12. Applicants do not admit that Rostron is prior art and reserve the right, as provided for under 37 C.F.R. 1.131, to "swear behind" Rostron.

Claims 1-12 are not obvious in view of the proposed combination of Glennon and Rostron. The proposed combination of Glennon and Rostron fails to disclose or suggest all of the claimed subject matter as included in each of claims 1-12.

Applicants believe they have established, for at least the reasons stated above, that Rostron fails to disclose or suggest all of the claimed subject matter included in amended claim 1, and all of the claimed subject matter included in amended claim 7. Applicants' representatives fail to find in, and the Office Action does not include any indication of where the additional disclosure in Glennon describes or suggests the claimed subject matter included in claims 1 and 7 and missing from Rostron. For example, there is no disclosure or suggestion in Glennon of **"the transformer circuit to generate a square wave signal at a transformer circuit output,"** as recited in claim 1 and in claim 7. Thus, the proposed combination of Glennon and Rostron fails to disclose or suggest each of the elements in claim 1 and in claim 7.

Claims 2-6 and 11-12 depend from claim 1, and so include all of the subject matter recited in claim 1. Claims 8-10 depend from claim 7, and so include all of the subject matter recited in claim 7. For at least the reasons stated above with respect to claims 1 and 7, and the additional subject matter included in these dependent claims, claims 2-6 and 8-12 are not obvious, and thus are patentable, over the proposed combination of Glennon and Rostron.

Further, the Office Action fails to meet the requirements³ for forming the proposed combination of Glennon and Rostron. On page 4 the Office Action states, "Thus, it would have been obvious to one having ordinary skill in the art to employ the filter of Rostron in the converter of Glennon to obtain the claimed invention for the purpose of smoothing the output voltage." However, this suggestion for forming a combination of Glennon and Rostron is contradicted by the disclosures in Glennon and Rostron. Glennon describes a process of AC-DC-AC power conversions, wherein Glennon states,

Referring now to FIG. 2, the VSCF system 10 includes a brushless, synchronous generator 22 driven by the prime mover 12. During operation in the generating mode, the generator 22 develops polyphase, variable frequency AC power which is converted into DC power by a rectifier/filter 26. The resulting DC power is provided over a DC link 30 to a polyphase inverter 32 which converts the DC power into three-phase, constant frequency AC power. This AC power is provided by an autotransformer 33, an optional filter 34 and the set of controllable contactors 14a-14c to the load bus 16.⁴

In contrast, Rostron describes the use of this AC-DC-AC technology of Glennon as a disadvantage, wherein Rostron states,

The avoidance of costly and physically large energy storage devices and the ability to compensation for voltage sags of unlimited duration are additional advantages of the present technology. Because the present technology does not use stored energy to restore the "missing" voltage and power during voltage sag events, the time duration that the present technology can compensate for a voltage sag event is not limited in duration by the size of the energy storage devices. **Virtually all AC-DC-AC inverter technologies suffer from this important technical limitation, or they suffer from an extreme increase in control complexity in order to continually charge and discharge the energy storage devices to the proper voltage levels during the voltage sag event.** In addition, the elimination of the AC-DC-AC

³ The Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. *In re Sang Su Lee*, 277 F.3d 1338, 61 USPQ2d 1430 (Fed. Cir. 2002). Further yet, the fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990); MPEP § 2143.01. Finally, the Examiner must avoid hindsight. *In re Bond* at 834.

⁴ See Glennon at column 3, lines 43-54.

inverter circuitry greatly reduces the required number of switching elements, while the use of full-bridge inverter circuits further reduce the number of switching elements. These advantages of the present technology result in a relatively simple circuit topology, relatively simple control methods, significantly fewer switching elements, substantially lower cost, and better operating performance than prior voltage compensation technologies.⁵ (Emphasis added)

Rostron further states, "The present technology is much simpler than prior voltage compensation technologies in that it avoids AC-DC-AC power conversion"⁶ Thus, Rostron specifically teaches away from the use of AC-DC-AC inverter circuitry, such as the circuitry as described in Glennon. Therefore, one of ordinary skill in the art would not be motivated to combine the disclosure of Glennon with Rostron, as suggested in the Office Action. Instead, Rostron specifically describes reasons why it would be *undesirable* to form the proposed combination of Glennon with Rostron as suggested in the Office Action. Thus, the Office Action fails to meet the requirements for forming the proposed combination of Glennon with Rostron, and therefore fails to state a *prima facie* case of obviousness with respect to claims 1-12, as amended.

For at least the reasons stated above, Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection based on Glennon and Rostron, and reconsideration and allowance of claims 1-12.

Claims 13-14

Claims 13-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Glennon (U.S. 5,008,801) as modified by Rostron (U.S. 6,559,562) and further in view of Cross (U.S. 5,795,595). Applicants respectfully traverse the rejection of claims 13-14.

Claims 13 and 14 are not obvious in view of the proposed combination of Glennon, Rostron, and Cross. The proposed combination of Glennon, Rostron, and Cross fails to disclose or suggest all of the claimed subject matter as included in each of claims 13 and 14.

Claims 13 and 14 depend from claim 1, and so include all of the subject matter included in amended claim 1. Applicants believe they have established, for at least the reasons stated

⁵ See Rostron at column 7, lines 40-61.

⁶ See Rostron at column 9, lines 3-5.

above, that the proposed combination of Glennon and Rostron fails to disclose or suggest all of the claimed subject matter included in claim 1, and so fails to disclose or suggest all of the claimed subject matter included in claims 13 and 14.

Applicants' representatives fail to find in, and the Office Action does not include any indication of where the additional disclosure in Cross describes or suggests the claimed subject matter included in claims 13 and 14 and missing from Glennon and Rostron. Thus, the proposed combination of Glennon, Rostron, and Cross fails to disclose or suggest the claimed subject matter included in claims 13 and 14.

Further, for reasons analogous to those stated above, the Office Action fails to meet the requirements for forming the proposed combination of Glennon, Rostron, and Cross, and so fails to state a *prima facie* case of obviousness with respect to claims 13 and 14. For example, the Office Action on page 5 states,

Therefore, it would have been obvious to one having ordinary skill in the art to employ second converter in Glennon as modified by Rostron, as taught by Cross, to obtain the claimed invention for the purpose of "highly efficient and compact, and is suitable for use under high power, high frequency conditions.

However, as noted above, Rostron describes the type of technology used in Glennon as suffering "from an extreme increase in control complexity in order to continually charge and discharge the energy storage devices to the proper voltage levels during the voltage sag event,"⁷ and further suggests that "the *elimination of the AC-DC-AC inverter circuitry* greatly reduces the required number of switching elements."⁸ (Emphasis added). Thus, the statements in the Office Action on page 5 regarding "highly efficient and compact" as support for forming the combination Glennon with Rostron are directly contradicted by the disclosure in Rostron, and so the Office Action fails to meet the requirements for forming the proposed combination of Glennon, Rostron, and Cross. By failing to meet these requirements, the Office Action fails to state a *prima facie* case of obviousness with respect to claims 13 and 14.

⁷ See Rostron at column 7, lines 49-52.

⁸ See Rostron at column 7, lines 52-56.

For at least the reasons stated above, Applicants respectfully request withdrawal of the 35 U.S.C. § 103 rejection based on Glennon, Rostron, and Cross, and reconsideration and allowance of claims 13 and 14.

Allowable Subject Matter

Claims 15-21 were allowed. Applicants respectfully acknowledge the allowance of claims 15-21.

Reservation of Rights

Applicants do not admit that references cited under 35 U.S.C. §§ 102(a), 102(e), 103/102(a), or 103/102(e) are prior art, and reserve the right to swear behind them at a later date. Arguments presented to distinguish such references should not be construed as admissions that the references are prior art.

Conclusion

Applicants respectfully submit that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicants' attorney ((612) 371-2132) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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